to leeward of the reel, with the line attached to the shot. A clamp *n* hangs from the frame *b*, by means of which the last coil of the rope is to be bound to the rim of the cone, in order to secure it for travelling, the remainder of the line being on the frame *o o*. Another line on a similar frame *o o*, fig. 2, is stowed in the tail of the cart, and *p*, on the top of the cart, is a locker in front of the axle-tree for the shot.

Fig. 8 represents one of these shots, which has a cylindrical body, and is made conical behind.

The carts and reels are drawn forty times less than the original.

II.—INSTRUMENT TO ENABLE THE BLIND TO WRITE MUSIC.

The LARGE SILVER MEDAL *was this Session given to* DON JAIME ISERN, *for his* INSTRUMENT TO ENABLE THE BLIND TO WRITE MUSIC, *which has been placed in the Society's Repository.*

DON JAIME ISERN, the inventor of this machine, is a gentleman of Catalonia, who has been blind from his birth. He is now about twenty-five years old, and is an excellent performer both on the piano-forte and violin. Some time ago he was induced to make a journey to o ntpellier, for the purpose of being couched, and though the operation was entirely without success, yet the journey had this advantage, that it afforded him the opportunity of learning to write both common letters and musical notes. On his return, he invented the machine in question, and has used it with much satisfaction ever since.

The object of the invention is, to enable a blind composer to transfer his thoughts to paper in the usual musical notation, without the necessity of employing an amanuensis. It has this disadvantage, that the inventor cannot afterwards read what he has written, but this, in the particular case of Don J. Isern, is of small moment, for being endowed with a tenacious and well-exercised memory, he never begins to write any musical composition till he has passed and repassed through his own mind the whole series of notes, and has thus corrected it to his own satisfaction. He then transfers it to paper in the manner to be described, and at the same time finds, that by the effort he has impressed it indelibly on his memory.

It is obvious that the power which through this instrument he acquires, of writing music on paper in the common notation, frees him from the necessity of employing another person to re-write and translate (so to speak) his thoughts, as would be the case if he had made use of any of the instruments hitherto invented for enabling the blind to write music. He has therefore rendered himself much more independent in this particular than he was before; and those who take thought on the long tedious hours of solitude and involuntary idleness which result from the extinction of the noblest of the senses, will not lightly appreciate an invention which redeems from blank oblivion some of these hours, and converts them into enjoyment and a blessing.

The instrument is a table or board (plate iii, fig. 1) about eighteen inches long, and nine inches wide, on the bottom of which a sheet of white paper is secured by means of a straining frame. Over this is laid another sheet of paper covered on the under side with a composition of oil and lamp-black, so that any lines or characters drawn with a hard point on the upper paper will be represented by corresponding black lines on the white

paper. One of the longitudinal edges, *f f*, of the frame, is about half an inch high, and has a simple groove made along its inner side, *i*, fig. 3; the opposite edge is twice as high, in order to allow room for a groove corresponding with that in the other end, and also for a line of teeth, or a rack *t* placed above the groove. At one end of the frame is a slider, *k*, having a spring click, which takes into the teeth of the rack, and which, therefore, may be moved forward by equal intervals for every note, division of the measure, &c. On the inner margin of the slide is a chamfered brass plate *q*, figs. 1 and 2, about an inch wide, having ten music lines, composed of five each, raised on its surface, with notches between for the ledger lines. At the other end of the frame is inserted a slide, *j*, figs. 4 and 5, carrying a ruler in which are ten sets of five wires each. If this slide is pushed on till it comes in contact with the slide *k* already described, it will be found that the wires in the former coincide with the raised lines on the latter; and if the ruler be then drawn back to its former position, pressing down the wires at the same time, by bearing on the handle *p p*, the white paper below will be ruled fit to receive the musical notes, &c. The ruler-slide is then to be withdrawn, and is to be replaced by a plain one *l*, on the inner edge of which are scores or notches indicating the position of the ruled lines. This slide is to be brought almost in contact with the slide *k*, and the first note is to be made on its proper line, by pressing with a blunt style, fig. 11, on the black paper, to form the body of the note, and the tail of the note is to be afterwards drawn by using the other end of the style. The slide *k* is then to be moved on one space, as indicated by the falling of the click into the rack, and the second note is to be inserted in the same manner as the first. The tails of the notes are joined by bringing the slide *l* close up to the other, and then moving this latter as many

spaces back as there are notes to be joined, and then drawing the joining line. A fork, fig. 9, is inserted into the brass edge of the ruler *k* (as shown in fig. 1) as a guide, between the prongs of which any words, as allegro, &c., are to be written.

Further Details.

Fig. 1 is a top view of the instrument.

Fig. 2 is an elevation, the side *f f* being removed by drawing the screws *h h*: the side *f f* is shown by itself, fig. 13.

Fig. 3 is an elevation of the board, and of the slide *k*, at right angles to fig. 2: the same letters in each indicate the same parts.

The board *a c* is covered at top with tin plate, in order to oppose a firm pressure against the writing style. A sheet of paper previously damped is laid on the board, and is secured steadily in its place by pressing the wedges *e e* into the grooves *d d*, which they are represented as occupying; and this is done most conveniently by removing the side *f f*.

The side *f f* being now replaced, and the blacked paper being laid smoothly over the white one, the slide *k* is to be introduced, by placing the edges *m m* into the grooves *i i*, fig. 3.

The slide *k* consists of the following parts: a knob or handle to move it by; a spring click, composed of, *v* a stud, in which is inserted a steel spring, terminated by the wedge-shaped click *u*; a brass plate *q q*, secured by the screws *r r r*, having ten sets of lines raised on its surface, and its exterior edge being serrated with teeth, to indicate the position of the ledger lines; holes *w w* are also made intermediate between the raised lines, in order to receive the pin *x* of the fork, figs. 9 and 10, the

square extremity of which, *x*, takes into the holes *y y y*. There is also a series of holes *á á* on the slide, into any one of which may be put the pin *b'*, to show at what line the person using the machine left off, and therefore, where he is to begin again.

Figs. 7 and 8 are an edge and top view of the brass plate, of the full size.

Figs. 4 and 5 are the ruling slide; *l* the body, *m m* the feather edges of brass which are received into the grooves *i i*, fig. 3; *n n* a flap hinged to the body; *o o* the ruler, formed of pieces of stiff wire; *p p* the handle. This slide is to be introduced at the end of the board, fig. 1, opposite to that by which the slide *k* is inserted, and is to be brought up in close contact to *k*, so that the ends of the wires *o o* touch the ends of the raised lines *s s*; pressure being then made, and the ruling slide being at the same time slowly drawn out of the board in the direction *c*, the lines *b* will be ruled on the paper.

The slide *l*, of which fig. 6 is an edge view, is now to be introduced in place of slide *j*, and the musical notes, &c. are to be written as already described.

When the whole is finished, the peg, fig. 12, is to be introduced into the holes, beneath the wedges *e e* shown in fig. 2, and by moderate pressure, the wedges are forced up, and the paper may then be removed.

III.—TYPES FOR THE BLIND.

The GOLD VULCAN MEDAL *was this Session presented to Mr.* GEORGE GIBSON, *of Birmingham, for his* TYPES FOR THE USE OF THE BLIND, *a set of which has been placed in the Society's Repository.*

AT the Institution for the Blind, in Paris, the pupils were, more than forty years ago, taught to read by the Abbé